

CLAIMS

What is claimed is:

- 1 1. A method for controlling operation of a drilling rig having a control management system,
2 comprising:
 - 3 a) programming said control management system with at least one resource module
4 associated with at least one set of operating parameters, said at least one resource module
5 having at least one operating model having at least one set of programmed operating rules
6 related to the at least one set of operating parameters; and
 - 7 b) providing an authenticating hierarchical access to at least one user to the at least
8 one resource module.
- 1 2. The method of claim 1, further comprising allowing said at least one user to input an
2 adjusted value for at least one of the set of operating parameters in the at least one resource
3 module.
- 1 3. The method of claim 2, further comprising comparing said adjusted value to said at least
2 one set of programmed operating rules and allowing adjustment if said adjusted value is within
3 said operating rules, otherwise preventing adjustment of said value.
- 1 4. The method of claim 3, further comprising providing an indication if said adjusted value
2 is not within said operating rules.

1 5. The method of claim 2, further comprising providing a supervisor override to prevent
2 acceptance of said adjusted value.

1 6. The method of claim 1, wherein the authenticating hierarchical access is programmed at
2 the rig site.

1 7. The method of claim 1, wherein a first allocated resource module having a first set of
2 operating parameters is accessible to only one user at a time.

1 8. The method of claim 7, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is the same as
4 an operating parameter of said first set of operating parameters.

1 9. The method of claim 7, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is indirectly
4 related to an operating parameter of said first set of operating parameters.

1 10. The method of claim 1, further comprising requiring supervisor approval to accept said
2 adjusted value.

1 11. The method of claim 1, further comprising providing remote access for communicating to
2 the control system.

1 12. The method of claim 1, further comprising displaying said at least one set of operating
2 parameters in at least one remote location.

1 13. The method of claim 1, wherein the at least one model and the at least one set of
2 operating rules form a neural network for controlling the rig.

1 14. The method of claim 1, wherein the at least one set of operating rules are an expert
2 system.

1 15. A method for controlling operation of a drilling rig having a control system, comprising:
2 a) programming said control management system with at least one resource module
3 associated with at least one set of operating parameters, said at least one resource module
4 having at least one operating model having at least one set of programmed operating rules
5 related to the at least one set of operating parameters;
6 b) providing an authenticating hierarchical access to at least one user to the at least
7 one resource module;
8 c) allowing said at least one user to input an adjusted value for at least one of the set
9 of operating parameters in the at least one resource module;
10 d) comparing said adjusted value to said at least one set of programmed operating
11 rules and allowing adjustment if said adjusted value is within said operating rules;

- 12 e) providing an indication if said adjusted value is not within said operating rules;
- 13 and
- 14 f) providing a supervisor override to prevent acceptance of said adjusted value.

1 16. The method of claim 15, wherein the authenticating hierarchical access is programmed at
2 the rig site.

1 17. The method of claim 15, wherein a first allocated resource module having a first set of
2 operating parameters is accessible to only one user at a time.

1 18. The method of claim 17, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is the same as
4 an operating parameter of said first set of operating parameters.

1 19. The method of claim 17, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is indirectly
4 related to an operating parameter of said first set of operating parameters.

1 20. The method of claim 15, further comprising requiring supervisor approval to accept said
2 adjusted value.

- 1 21. The method of claim 15, further comprising providing remote access for communicating
2 to the control system.
- 1 22. The method of claim 15, further comprising displaying said at least one set of operating
2 parameters in at least one remote location.
- 1 23. The method of claim 15, wherein the authenticating hierarchical access comprises using
2 at least one of (i) a password, (ii) a physical key, (iii) a radio frequency identification device, (iv)
3 a fingerprint device, (v) a retinal scan device; and (vi) an digital software key.
- 1 24. The method of claim 15, wherein the at least one model and the at least one set of
2 operating rules form a neural network for controlling the rig.
- 1 25. The method of claim 15, wherein the at least one set of operating rules are an expert
2 system.
- 1 26. A computer readable medium containing instructions that when executed cause a
2 processor to control operation of a drilling rig according to the following method, comprising;
3 a) programming said control system with at least one resource module, said at least
4 one resource module having at least one operating model having at least one set of
5 programmed operating rules related to at least one set of operating parameters; and
6 b) providing an authenticating hierarchical access to at least one user to the at least
7 one resource module.

1 27. The computer readable medium of claim 26, further comprising allowing said at least one
2 user to input an adjusted value for at least one of the set of operating parameters in the at least
3 one resource module.

1 28. The computer readable medium of claim 26, further comprising comparing said adjusted
2 value to said at least one set of programmed operating rules and allowing adjustment if said
3 adjusted value is within said operating rules, otherwise preventing adjustment of said value.

1 29. The computer readable medium of claim 26, further comprising providing an indication if
2 said adjusted value is not within said operating rules.

1 30. The computer readable medium of claim 26, further comprising providing a supervisor
2 override to prevent acceptance of said adjusted value.

1 31. The computer readable medium of claim 26, wherein the authenticating hierarchical
2 access is programmed at the rig site.

1 32. The computer readable medium of claim 26, wherein the at least one resource module is
2 accessible to only one user at a time.

1 33. The computer readable medium of claim 26, further comprising requiring supervisor
2 approval to accept said adjusted value.

1 34. The computer readable medium of claim 26, further comprising providing remote access
2 for communicating to the control system.

1 35. The computer readable medium of claim 26, further comprising displaying said at least
2 one set of operating parameters in at least one remote location.

1 36. The computer readable medium of claim 26, wherein the at least one model and the at
2 least one set of operating rules form a neural network for controlling the rig.

1 37. The method of claim 26, wherein a first allocated resource module having a first set of
2 operating parameters is accessible to only one user at a time.

1 38. The method of claim 37, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is the same as
4 an operating parameter of said first set of operating parameters.

1 39. The method of claim 37, further comprising an interlock system preventing adjustment of
2 an operating parameter of a second set of operating parameters of a second allocated resource
3 module where said operating parameter of said second set of operating parameters is indirectly
4 related to an operating parameter of said first set of operating parameters.